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| 10/599,374 | 09/27/2006 | Toshiyuki Kiyokawa | P30770 | 7727 |
| 7055 7590 08/20/2008 GREENBLUM & BERNSTEIN, P.L.C. 1950 ROLAND CLARKE PLACE RESTON, VA 20191 | | | | |
| EXAMINER | | | | |
| TON, TRI T | | | | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/599,374

Applicant(s)

KIYOKAWA, TOSHIYUKI

Examiner

TRI T. TON

Art Unit

2877

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 May 2007.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1,3,15,16,18 and 23 is/are rejected.
7) ☒ Claim(s) 2,4-14, 17 and 19-22 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 27 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 05/04/07, 04/30/07, 12/26/06
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on 05/04/07, 04/30/07, 12/26/06 have been entered. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Oath/Declaration

2. The Oath and Declaration filed on 09/27/2006 is acceptable.

Abstract

3. The abstract filed on 09/27/2006 is objected because the abstract contains more than 150 words.

Drawings

4. The drawings filed on 09/27/2006. These drawings are acceptable.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 3, 16, 18, 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saitoh et al. (U.S. Patent No. 5,644,245) in view of Hotta Kazuhiro (JP. Publication No. 2002-164526). Hereafter, "Saitoh" and "Hotta".

Regarding Claim 1, Saitoh teaches input and output terminals into contact with contact parts of a test head (column 17, lines 51-60), emitting light on light receiving surface (column 19, lines 4-8), and inputting and outputting electrical signals with respect to input and output terminals from said test head (column 13, lines 4-29), said test apparatus provided with at least a contact arm holding and bringing into contact with a contact part of the test head (figure 1, elements 1014, 16, w, 12. Figure 19, element 313), (ring insert 16 is not different from a contact arm that holds the probe card for inspecting), a moving means provided at a base side and moving said contact arm (column 5, lines 5-8, column 23, lines 66-67, column 24, lines 1-11), a light source emitting light to the light receiving surface of said image sensor (column 19, lines 4-8), a calculating means for calculating a relative amount of deviation of an optical axis of light receiving surface of the image sensor to an optical axis of said light source (abstract, lines 17-19, column 23, lines 46-49, lines 59-62), (surface of image sensor is not different from the surface of pad position. The optical axis is not different from the probe needle), and a correcting means for correcting the position of said contact arm in the state holding said image sensor based on the relative amount of deviation of the optical axis of said image sensor calculated by said calculating means (abstract, lines 19-22, column 23, lines 62-65), (correcting the position of the pads is not different from correcting the position of contact arm. The deviation of needle mark

and the pad is not different from the deviation of the optical axis of the light source and the image sensor).

However, Saitoh does not teach testing image sensor for optical characteristics. Hotta teaches testing image sensor for optical characteristics ([0005], [0024]). It would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify Saitoh by testing at least one image sensor for optical characteristics in order to test the optical characteristics of a image sensor (stated by Hotta [0024], [0027]).

Regarding Claims 3, 18, Saitoh teaches calculating means calculates said relative amount of deviation of the optical axis of the image sensor with respect to the optical axis of the light source based on the electrical signals outputted from the input and output terminals of said image sensor with respect to the contact part of said test head while emitting light from said light source toward the light receiving surface of said image sensor in the state contacting said contact part (abstract, lines 17-19, column 23, lines 46-49, lines 59-62, column 24, lines 4-11), (surface of image sensor is not different from the surface of pad position. The optical axis is not different from the probe needle).

Regarding Claim 16, Saitoh teaches bringing input and output terminals into contact with contact parts of a test head by contact arms (column 17, lines 51-60), emitting light on light receiving surfaces from light sources (column 19, lines 4-8), and inputting and output electrical signals with respect to input and output terminals from contact parts of said test head (column 13, lines 4-29), said method for testing provided with at least a calculating step of calculating a

relative amount of deviation of an optical axis of said image sensor with respect to an optical axis of said light source (abstract, lines 17-19, column 23, lines 46-49, lines 59-62), (surface of image sensor is not different from the surface of pad position. The optical axis is not different from the probe needle) and a first correcting step of correcting the position of the contact arm in the state holding said image sensor based on the relative amount of deviation of the optical axis of said image sensor calculated in said calculating step (abstract, lines 19-22, column 23, lines 62-65), (correcting the position of the pads is not different from correcting the position of contact arm. The deviation of needle mark and the pad is not different from the deviation of the optical axis of the light source and the image sensor).

However, Saitoh does not teach testing image sensor for optical characteristics. Hotta teaches testing image sensor for optical characteristics ([0005], [0024]). It would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify Saitoh by testing at least one image sensor for optical characteristics in order to test the optical characteristics of an image sensor (stated by Hotta [0024], [0027]).

Regarding Claim 23, Saitoh teaches correcting a root side contact arm of said contact arm by making it move relative to a holding side contact arm of said contact arm in an X-Y plane substantially parallel to said contact part of the root side contact arm in the free state (column 1, lines 28-34, column 5, lines 1-8, column 6, lines 8-13), (wafer chuck is not different from contact arm which holds the wafer for inspection), then locking said root side contact arm with respect to said holding side contact arm (column 5, lines 40-50, column 6, lines 14-18), (probe card and wafer chuck are locked when the position of the probe needles are determined).

7. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Saitoh et al. (U.S. Patent No. 5,644,245) in view of Hotta Kazuhiro (JP. Publication No. 2002-164526) and further in view of Kumagai et al. (U.S. Publication No. 2004/0246498). Hereafter, “Saitoh”, “Hotta” and “Kumagai”.

Regarding Claim 15, Saitoh and Hotta teaches all the limitations of claim 1 as stated above except for reflecting means reflecting an image is provided on the optical axis of said image capturing means. Kumagai teaches reflecting means reflecting an image is provided on the optical axis of said image capturing means ([0039]). It would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify Saitoh and Hotta by having reflecting in order to “detect a center position of the reflector on the imaging unit”, (stated by Kumagai, [0044], lines 8-9).

Allowable Subject Matter

8. Claims 2, 4-14, 17 and 19-22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. The following is a statement of reasons for the indication of allowable subject matter: there was no prior art found by the examiner that suggested modification or combination with the cited art so as to satisfy the combination of all the limitations in claims 2, 8, and 17.

10. As claims 2 and 17, the prior art of record taken alone or in combination, fails to disclose or render obvious “recognizing the relative position of said image sensor in the state held at said

contact arm with respect to said contact part based on image information captured by said first image capturing means ... correcting means provided at said base side and correcting the position of said contact arm in the state holding said image sensor based on the relative amount of deviation of the optical axis of said image sensor calculated by said calculating means and the relative position of said image sensor recognized by said image processing means” in combination with the rest of the limitations of claims 1 and 2.

11. As claim , the prior art of record taken alone or in combination, fails to disclose or render obvious “each contact arm is provided with a holding side arm holding said image sensor, a root side arm fixed to said moving means, and a lock-and-free means provided between said holding side and said root side arms and able to lock or flee planar movement of said holding side arm with respect to said root side arm in an X-Y plane substantially parallel to said contact part.” in combination with the rest of the limitations of claims 1 and 8.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The references of Saitoh et al. (U.S. Patent No. 5,644,245), Hotta Kazuhiro (JP. Publication No. 2002-164526) and Kumagai et al. (U.S. Publication No. 2004/0246498) teach of various features similar to the claimed invention.

Fax/Telephone Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tri T. Ton whose telephone number is (571) 272-9064. The examiner can normally be reached on 10:30am - 7:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr. can be reached on (571) 272-2059. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

August 14, 2008
Examiner /Tri T Ton/

/Michael A. Lyons/

Primary Examiner, Art Unit 2877

August 14, 2008